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World telecom 1984 spending to level out at $78.8 billion

DEL MYERS, EDITOR, and CZATDANA INAN, DIRECTOR-MARKETING RESEARCH

TELEPHONY'S 1984 Annual Survey of International Telecommunications is the primary source of the information in this article. Supplementing the survey, however, is information obtained by TELEPHONY editors throughout the year from world telecommunications authorities. The survey, published in English, French and Spanish and sent to a selected sample of PTT administrations and operating companies, solicited information on planned spending and plant investment. More importantly, the information provided through the survey allows an accurate quantification of the world's existing telecommunications plant and its overall rate of growth. This information is much more valuable to the operating entity managers and planners, as well as their suppliers, than is the traditional measure of teledensity (the number of telephones versus population).

We deeply appreciate the continuing effort and cooperation of telecommunications authorities throughout the world in providing the information needed to reach this elusive goal.

And, as announced in TELEPHONY's 1983 survey report (Feb. 28, 1983, p. 39), all of the survey information is being made available to the International Telecommunication Union for use by its members. The report will be available to the public in June.–Editor.

THE 1984 world telecommunications spending estimate of $78.8 billion is like a stroboscopic view of a moving object—the action only appears to be stopped.

The estimate itself (Table 1) is based on a constant dollar, weighted extrapolation of data from 39 countries serving approximately 80% of the world's 565 million telephones.

Included in the estimate, however, is the 1984 United States estimate of $30.9 billion, a volatile figure that requires considerable interpretation (see TELEPHONY, Jan. 16, p. 34). The balance of the estimate, $47.9 billion, includes some unique international factors that also need interpretation. Estimates in United States dollars, for example, must be related to monetary exchange rates as well as inflation to prevent a distorted view. The degree of telecommunications liberalization and protectionism also introduces obscurity in the actual spending for customer premises equipment and the true market value of expenditures for equipment where an open market does not exist.

The net positive contribution of telecommunications investment to development never will be clear so long as the debate continues to pit the purely social (and, usually, desirable) dimensions of telecommunications policy against its economic or commercial dimensions. Too often, such elementary economic considerations as life-cycle costs, pay-back period and contribution to the gross national or local product are ignored. The absence of such data probably is the single strongest factor limiting telecommunications investment funds.

Other than the United States, the 1984 big spenders will be Japan, $7.3 billion (Yen 1.7 trillion); West Germany, $5.4 billion (DM14.8 billion); France, $3.9 billion (FF33 billion); Italy, $3.0 billion (Lire 5.0 trillion) and the United Kingdom, $3.0 billion (£2.1 billion).

Nevertheless, telecommunications spending in all the major countries except Italy is leveling out and growth rates are averaging approximately 5% annually; for example, Bell Canada's construction budget remained stable during the 1974-1980 period but, in 1982, the capital expenditure of $1.4 billion was less than the budgeted figure of $1.6 billion and identical to the 1981 budget figure of $1.4 billion. Bell Canada's actual spending figure for 1983 is not yet available but it probably will be $1.2 billion, 16% less than the budget projection.

Nippon Telegraph and Telephone

Continued on page 44

Table 1

World telecom spending: 1979-1984 ($000,000 omitted)

	International (U.S. excluded)		United States		Total World	
	Carriers	Open market	Carriers	Open market	Carriers	Open market
1984	$47.9	na	$22.8	$8.1[a]	$70.7	$8.1[a]
1983	48.7		21.3	5.5[b]	70.0	5.5[b]
1982	46.9		22.4	na	69.3	
1981	46.2		23.0		69.2	
1980	45.4		20.9		66.3	
1979	45.0		19.4		64.4	

a. $4.5 billion voice communications equipment and $3.6 billion data communications projected capital acquisitions by private business users.
b. Voice communications equipment capital acquisitions only.

Table 2

Western Europe: Business communications development[a]

	PBX systems				Year of public service			
	PBX systems	% Auto-matic	%-50 Lines	Modems	Telex	Facsimile	Teletex	Packet-Switched Data Network
Austria	9,500			16,500	21,900	nr	nr	1982
Belgium	50,258	100%	99%	nr	25,961	1983	1984	1982
Denmark								
Jydsk Telephone	12,200			nr	nr	nr	1983	nr
Finland								
PTT	5,734	99%	85%	6,681	7,765	1979	1982	1984
Association	20,455	100%	75%	20,455	PTT	1979	1982	1984
France	nr[b]			102,000	98,000	1980	1983	1978
Germany	767,550[c]	98%	96%	130,000	151,000	1979	1981	1980
Greece	14,300			nr	15,000	nr	nr	nr
Italy								
SIP	90,000[d]	90%	91%	106,426	58,000	nr	1984	1984
Netherlands	25,000			38,000	nr	1983	1984	nr
Norway	16,000			13,000	8,000	1981	1983	1983
Portugal								
TLP	15,000			1,300	nr	nr	nr	1984
Spain	32,680	84%	82%	54,436	28,000	1983	1982	1971
Sweden	41,730	94%	97%	49,737	16,900	1980	1982	1980
Switzerland	112,300	98%	nr	20,800	41,600	1979	1981	1981
United Kingdom								
British Telecom	nr[e]			82,000	92,000	nr	1983	1981

a. Figures as of January-December due to fiscal/calendar reporting.
b. DGT does not supply PBXs for rent or purchase. Northern Business Information (New York) figures show PBX installed base rose from 119,000 in January to 130,000 at the end of December. Key systems, which are privately and DGT supplied, rose from 304,000 to 327,000 and 148,000 to 160,000, respectively. TELEPHONY estimates 550,000 new lines installed annually, distributed Juemont-Schneider, 37%; CIT Alcatel of CGE, 30%; Thomson, 16%; and CGCT (former ITT subsidiary), 6%.
c. 93% of the reported total are under 25 line systems. Additional 225,000 key systems reported. Bundespost competes in PBX market, other major suppliers are Siemens, Telefonbau & Normalzeit, SEL, DeTeWe and Te Ka De.
d. Additional 500,000 key systems reported, averaging 2.5 lines per system.
e. Estimated 150,000 PBXs. No reliable estimate for key systems.
nr, no report.

Public Corp. (NTT) of Japan also has stabilized spending—in 1982, the latest year for which actual figures are available, spending was 0.5% less than the budgeted amount.

In the United States, the Independent telephone companies spent $5.0 billion in 1983 versus an estimate of $5.1 billion. American Telephone & Telegraph Co. (AT&T) exercised tight financial control over all its operations in the year before divestiture.

In 1983, the Bell operating companies or BOCs (now separated from AT&T), and AT&T Communications (formerly AT&T Long Lines) spent only $14.8 billion, 11.1% less than the budgeted amount of $16.8 billion.

Italy, in contrast to other major countries, is planning substantial growth. During the 1978-1982 period, expenditures amounted to $6.5 billion (Lire 10.5 trillion). For the 1983-1987 period, the projected figure is $15.5 billion (Lire 25 trillion).

Accurately comparing the 1984 world spending forecast of $79.8 billion with the $75.5 billion actually spent in 1983 requires some simple arithmetic—subtracting $3.6 billion from the 1984 forecast. This amount represents a data communications equipment estimate in the United States 1984 forecast. The 1983 forecast did not include a comparable figure.

The $75.5 billion actually spent in 1983 was $3.0 billion less than forecast with the United States accounting for $2.1 billion of the reduction.

Excluding data communications equipment, therefore, the adjusted 1984 forecast is $75.2 billion, $300 million less than the 1983 actual spending figure. Indeed, if many managers achieve their customary under-budget objectives in 1984, the actual spending will level out at approximately $75 billion.

Since annual expenditures in this range are approximately 16% of the world's total estimated $475 billion investment in telecommunications plant, is the world telecommunications industry only maintaining the status quo? Is real growth occurring? Where? Can this relatively flat annual spending for telecommunications be reconciled with the explosive telecommunications growth customarily predicted for the "information age"?

Answers to these questions mainly lie in the complex but interrelated areas of technology, economics, protectionism and liberalization/deregulation. The latter terms, although not interchangeable because of national legal differences, mean essentially the same thing: the elimination or curtailment of the monopoly role in supplying telecommunications equipment and services to customers and a corresponding establishment or expansion of the customer's role.

Technology and economics inexorably are forcing the issue of liberalization because technology leads to a much greater differentiation of demand and revenues among business users than among residential customers.

At the same time, technology offers alternate and economical ways to satisfy the demands and creates the climate in which alternate sources of supply demand the right to exist with or in place of the monopoly.

Business user groups such as the International Communications Assn. (ICA), the International Telecom-

Continued on page 46

Table 3

Access line, local network development & plant investment: 1982[a]

	Access Lines	Local Switches	% Distribution SxS	SB	ESS	Dig	Oth	Plant Investment (000 Omitted)
The Americas								
Telecom Canada								
Bell Canada	7,561,801	1,025	48%	36%	8%	8%		9,944,300
British Columbia	1,339,584	314	85		15			2,344,353
Alberta Gov't.	931,310	361	23	55	15	7		2,974,719
Manitoba	556,768	263	51	44	3	2		nr
Saskatchewan	487,066	375	41	57	1	1		1,214,919
Maritime	376,322	170	24	51	12	13		615,000
New Brunswick	262,000	110	56	37	5	2		423,654
Newfoundland	174,087	86	48	42	12	13		252,439
Bahamas								nr
Bahamas Tel	32,090	21	39	24		8	29%	12,369
Grand Bahama	8,730	2		50		50		55,770
Bermuda	32,600	5				100		165,242
Dominican Rep.	148,500	53	80		20			243,000
Jamaica	71,600	41	34	66				
Puerto Rico								1,037,527
Puerto Rico Tel	603,723	1133	1	53	23	18	5	nr
PR Comm Authority	53,000	30						209,500
Trinidad	56,800	32	66	11	23		-1	
Argentina	2,200,000	1,300	65	23	12			nr
PTT	2,200,000	1,300	65	23	12			nr
De Telefonos	211,550	60		51	14		35	139,800
Brazil	5,930,000	3,502						9,539,269
Chile	429,324	70	20	77		3		862,000
Colombia								
Medellin	303,600	36	19	72	6	3		97,370
Costa Rica	205,143	145		98			2	290,800
Mexico	3,034,044	893	8	72	20	-1		3,127,869
Panama	194,440	46	30	4	11	9		173,829
Peru	112,257	217	17	1	56		27	nr
Uruguay	262,000	36	82	8				nr
Venezuela	1,241,591	449						nr
United States								[b]
Bell Regionals	84,734,000	10,200	51	23	26	-1		117,386,000
Independents	21,672,000	11,000	67	10	5	12	6	41,500,000
Western Europe								
Austria	2,438,672	1,447						2,710,610
Belgium	3,106,158	553	11	25		64		2,182,300
Denmark								
Jydsk Tel	1,001,997	697	92	8	-1			nr
Copenhagen Tel	1,400,000							nr
Finland								
PTT	730,842	2,228	18	82		-1		1,700,000
Assoc.	1,673,303	1,504	39	56	4	-1		nr
France	20,683,534	9,089	-1	83	5	15		21,029,000
Germany	25,847,000	6,105	5		-1		95	23,340,000
Greece	2,400,000	3,711						nr
Italy	15,000,000	9,803						nr
Netherlands	5,900,000	1,380						nr
Norway	1,559,000	3,732	90	-1		10		2,225,800

munications User Group (INTUG) and the currently inactive Business Telecommunications Services in Australia (see story on p. 50) are the ultimately invincible vanguard of telecommunications liberalization.

The United States is the best (some say, worst) example of what happens when the trustworthy monopoly crumbles. Certainly, the United States is not the model that many PTTs willingly intend to follow.

"If we were crazy," France's telecommunications Director General Jacques Dondoux told TELEPHONY (April 25, 1983, p. 25), "we could say, let's be like the United States and have 20 telephone companies in the country. But I have never heard a suggestion that a U.S. Bell operating company be cut up in 20 pieces. . . .French telecommunications. . .[with] about 20 million main lines [and] 20 administrative regions is about the same order of magnitude as an American BOC."

". . .my personal determination," Dondoux said, "is to have adequate management within the framework of the regulated system to make sure the French do not wish to deregulate."

Paolo Benzoni, managing director of SIP, the Italian company responsi-

SWT	TRANS	TMW	MOB	SAT	CPV	CPD	UND	BUR	AER	SUB	COX
23%	11%	2%			14%	5%	10%	7%	11%	2%	
21	9	3	-1%	-1%	22	2	12	2	12	-1	
27	3		9		5	13	8	2	2		12%
20	5	10	2		12	2	5	22	4		3
21	7	12	2		14	3	4	5	16	-1	-1
22	11	6	5	1	3	2	5	2	17	1	
27	5	7	1		14	1	5	2	19		
18	1				40		16	4	12		
38					24		14	-1	6	-1	
37	2	3		3	6		9	-1	9	3	
30	7				24	-1	9	2	12		
31	10	2	-1		9	-1	10	5	10		-1
31	14				5	2	5		35		2
46	5				4		35	all	cable		
46	5				4		35	all	cable		
40					7		26		15		
39	15		1			39	all	cable			
44	2	2	11		12		9		13		
47					12	5	5		9		
25	6	3	1		4	3	1	12	15	2	12
28	7	2	-1	1	9[c]	13[d]	18	-1	3		
17	6	1	-1	-1	6	2	42	all	cable		
32	6	3	1	1	9	2		25	5	1	1

Table 3 continued on p. 48

ble for more than 75% of the country's telecommunications modernization program, told TELEPHONY (Sept. 26, 1983, p. 32) that "SIP is not against further steps toward liberalization, as long as this process, which is to some extent inevitable, is gradual and care is taken to avoid waste due to duplication of plant or services."

SIP's strategic objectives, according to Benzoni, are development of the basic (telephone) service to the telephone maturity level of the principal industrialized nations (approximately 40 telephones per 100 people), network evolution and the implementation of new services and telematics. "Setting up private networks to serve particular markets," Benzoni said, "could use public network equipment, thus safeguarding its uniqueness and the economy of its operation."

"The government [of the United Kingdom] wants the marketplace to play a much more significant role in telecommunications," said Sir George Jefferson, chairman of British Telecom in a recent exclusive TELEPHONY interview (Jan. 23, p. 24). ". . .Whether the government can ever get to the stage of total deregula-

Table 3. . .continued

	Access Lines	Local Switches	% Distribution SxS	SB	ESS	Dig	Oth	Plant Investment (000 Omitted)
Portugal								
TLP	834,540	79	34	66				nr
CCT	1,331,337	943	70	30				nr
Spain	9,080,220	3,245		94	1	-1	4	11,512,000
Sweden	6,072,000	6,099		99			1	
Switzerland	8,820,000	1,022	88	12				4,873,000
United Kingdom	21,258,000	6,315	66	9	23		2	7,500,000
Middle East, Africa, Oceania and Far East								
Bahrain	69,000	11	59	9	32			17,853,000
Kuwait	294,200	19	74	11	15			nr
Israel	1,039,900	125	65	21	2	2		nr
Saudi Arabia	984,744	165		2	98			nr
Syria	306,900	40	89			11		nr
South Africa	1,970,915	nr	99			1		nr
Australia	6,140,000	4,783	6	71	3		20	2,338,857
New Zealand	1,200,000	826						12,040,270
Philippines								nr
PLD	426,621	51	71	3	24		2	932,554
Singapore	950,000	25	1	50	48	1		575,460
Thailand	482,454	204		100				329,566
Hong Kong	1,749,247	56	68	2	30			679,500
Japan	41,500,000	6,500						41,356,000
Taiwan	4,071,680	481	5	81	14	-1		2,778,687

a. Figures are for periods January-December 1982 due to fiscal/calendar reporting.
b. After divestiture.
c. Voice and data communications customer premise equipment.
d. Underground and buried cable.
e. Underground, buried and aerial cable.
f. Outside plant: 2.6% trunk, 5.5% junction cable/duct, 17.8% local, 0.8% submarine and 1.3% coaxial cable.

tion and withdrawal from licensing is for the future to determine."

These statements from world telecommunications leaders are typical: Every administration and telephone company in "mature" telecommunications nations is responding in some way to pressures for liberalization.

Like beauty, however, the adequacy of the response may lie in the eye of the beholder. At Telecom 83 in Geneva, for example, a business user complained to TELEPHONY of PTT unresponsiveness and described the growing impatience of the business community with PTT attitudes that view "compliance with a request as the first step in turning the asylum over to the inmates."

Understanding the nature and the extent of liberalization trends is important because they affect the accuracy of world telecommunications spending estimates. Since the United States has deregulated new customer premise equipment, it now is supplied by competitors, some of which are separate subsidiaries or divisions of regulated common carriers. Other suppliers are manufacturers, distributors, retailers and the like. Therefore, the telecommunications spending figures of the carriers no longer account for substantial sums and none of the competitors has an incentive to reveal annual sales forecasts.

Similarly, PTTs and administrations which permit interconnection of privately owned equipment to the network do not include it in their annual spending estimates. PTT type-approval, however, is a powerful form of regulation that makes this policy less open than it appears and, in Europe, PTTs purchase 75% to 90% of all telecommunications equipment.

Nevertheless, a substantial part of the world telecommunications growth associated with the information age is taking place outside the traditional boundaries of the world's telecommunications monopolies. TELEPHONY's 1984 spending estimate includes an accurate forecast for business communications equipment made by the large business users in the United States and a composite view of business communications development in Western Europe (Table 2).

Similarly, the level of expenditures for public switched network equipment and the numerical growth of the installed base (Table 3) do not tell the whole story. Virtually every administration and telecommunications company in developed and developing countries alike is purchasing or planning to purchase only state of the art equipment: stored program controlled time division multiplex (digital) switching equipment, fiber optic and satellite transmission links, packet switching and related data communications equipment, hybrid voice and data equipment, and the like.

And virtually every administration and telecommunications company expects to realize some form of the integrated services digital network (ISDN) within several years. In the United Kingdom and West Germany, for example, ISDN trials or limited service are imminent. In the United States, pre-ISDN services providing extensive digital connectivity are a reality. And, New Zealand's unique topography and commercial development make an extensive ISDN possible within the near future (see story beginning on p. 60).

While enhancing network capacity and capability is possible in mature telecommunications countries, many of the world's developing countries remain on the threshold of telecommunications development.

The 55 African nations included in TELEPHONY's international survey have 7 million telephones, slightly more than 1% of the world's 565 million phones (Table 4). Of Africa's total, the Republic of South Africa accounts for 43% and Algeria, Egypt,

SWT*	TRANS	TMW	MOB	SAT	CPV	CPD	UND	BUR	AER	SUB	COX
29	8	1	-1	-1	-1	13	-1	33[e]			-1 3
41	6	Nil	-1	-1	7	2	28	all	cable[f]		
43	13			-1	13	8	21	all	cable		
27	3	6	2	-1	12	1	29	6	5		
42	5	2	-1	1	10	-1	14		8	2	
21	5	4	4	1	4	4	27		-1	6	
35	5	9	3	4	6	6			16		
52	6				6	1	22		1		
32	2	1		-1	5	-1	22		8	1	

SWT: all switches and related equipment (circuits, test equipment, etc.); TRANS: all transmission equipment (including carrier, line conditioning, etc.); TMV: all terrestrial microwave equipment (including multiplex, etc.); MOB: all inside and outside mobile telecom equipment; SAT: all satellite earth station equipment; CPV: all customer premises voice equipment; CPD: all customer premises data equipment; UND: underground cable and conduit; BUR: buried cable; AER: aerial cable; SUB: submarine cable; COX: coaxial cable.

Kenya, Libya, Morocco, Nigeria, Tunisia and Zimbabwe account for 80% of the remainder.

The least developed countries have approximately 500,000 telephones and, currently, plan to spend an average of $350 million annually during the period of 1983-2000, a total of $5.9 billion.

Africa's overall development plans emphasize rural telecommunications and the projected growth rate of 14% annually will result in only 1 telephone per 100 people by the year 2000. While teledensity may be an insufficient measure of telecommunications development in industrialized countries, it clearly measures telecommunications insufficiency elsewhere.

Developing nations potentially are a huge market but telecommunications is not necessarily the number one choice for the commitment of scarce development funds. Generally, they and the international lenders concentrate funds in such areas as agriculture, electrical power and transportation.

During the 1968-1981 period, for example, 80% of World Bank loans went to seven sectors, including telecommunications. The share allocated to telecommunications, however, was 5.4% in the 1969-1973

Continued on page 96

Table 4

Africa: Least developed countries

1983 (Millions) Population	Country	Telephones Actual 1983	Telephones Planned 2000	1983-2000 US$ (millions) Investment
3.520	Benin	16.200	144.000	$143.0
0.940	Botswana	17.000	47.000	155.0
4.350	Burundi	4.400	23.000	40.0*
0.296	Cape Verde	1.700	20.000	118.0*
2.350	Cen. African Rep.	3.600	60.000	62.2*
4.830	Chad	2.500	30.000	366.0*
0.370	Comoros	1.800	12.000	87.0*
0.360	Djibouti	5.200	45.000	31.0*
0.370	Equatorial Guinea	1.100	9.000	65.0
33.700	Ethiopia	105.800	900.000	495.0
0.620	Gambia	3.900	29.000	46.0*
6.140	Guinea	20.100	384.000	80.0*
0.580	Guinea-Bissau	2.200	15.000	57.0
1.370	Lesotho	5.900	35.000	48.0
6.430	Malawi	37.000	66.000	301.0*
7.330	Mali	8.800	47.000	306.0
5.845	Niger	9.800	45.000	274.0*
5.110	Rwanda	4.600	30.000	40.0
0.100	Sao Tome & Principe	2.100	11.500	36.0*
3.500	Sierre Leone	16.000	25.000	90.0*
4.900	Somalia	7.900	74.000	220.0
20.280	Sudan	68.800	371.000	895.0*
18.600	Tanzania	101.000	658.000	600.0*
2.710	Togo	9.800	40.000	37.0
13.890	Uganda	62.100	682.000	920.0*
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155.581		530.600	3.872.500 +630%	$5.885.2

*Estimated by country's PTT, otherwise estimated by ITU

World telecommunications tariffs vary widely, U.K. firm reports

R.J. RAGGETT, EXECUTIVE EDITOR-INTERNATIONAL

British business users enjoy the cheapest international telephone and local telex services, and the second cheapest trunk and international telex services, but pay top prices for local telephone calls. Rates in the U.K. for local calls are double those in Italy.

These are among the findings of the latest international telecommunications cost survey conducted by National Utility Services (NUS) Ltd., Croydon, U.K., which compared telephone and telex costs in Canada, the United States, Italy, France, Belgium, the U.K. and Germany.

Table I

International telephone/telex cost comparison January 1984 vs. 1983 (Source: NUS Ltd.)

Country	U.K.	France	Belgium	Italy	Germany	Canada	U.S.
Inflation (annual rate)	4.5%	9.3%	7.2%	14.8%	2.6%	4.5%	3.5%
Telephone Local call							
1983	0.086	0.049	0.060	0.044	0.057	nil	0.056
1984	0.088	0.049	0.060	0.044	0.057	nil	0.056
Increase (%)	2.3%	nil	nil	nil	nil	nil	nil
Telephone Trunk Call							
1983	0.516	0.741	0.273	0.558	0.867	1.029	0.957
1984	0.528	0.741	0.273	0.843	0.867	1.080	0.957
Increase (%)	2.3%	nil	nil	51%	nil	4.95%	nil
Telephone International							
1983	1.62	3.557	4.368	4.283	5.534	3.393	3.238
1984	1.65	3.557	4.368	4.327	5.534	3.393	3.238
Increase (%)	1.8%	nil	nil	1.01%	nil	nil	nil
Telex Local call							
1983	0.075	0.211	0.182	0.176	0.301	0.305	0.732
1984	0.090	0.211	0.182	0.207	0.344	0.322	0.732
Increase (%)	20%	nil	nil	17.6%	14.2%	5.5%	nil
Telex International							
1983	1.80	1.976	2.949	2.616	2.490	3.817	3.125
1984	2.16	1.976	2.949	3.014	3.038	3.817	3.125
Increase (%)	20%	nil	nil	15.2%	22%	nil	nil

Notes

1. Prices as of Jan. 11, 1984 and 1983.
2. Prices expressed in pounds/pence sterling with exchange conversions based on Financial Times of Jan. 13, 1984.
3. Prices are all without value added tax.
4. All calls, telephone or telex, are of standard 3 minute duration.
5. Trunk calls costed over a standard distance of 200 miles.
6. International calls are between New York and European capital cities in the countries surveyed except Canada which are Toronto to London only.
7. In the U.K. and Italy, the only two countries surveyed where charges vary according to the time of day (standard/peak rates), an average of these rates has been used to simplify the comparisons.

British Telecom's charges showed a curious polarization in the year reviewed, said the report. Overall bills are low—some 33% less than France's and only half Germany's—but all telex charges went up 20% during the year, and local and trunk telephone call charges increased by 2.3% in 1983.

While Belgian prices remained static as compared with 1982-83, and kept their place low down on the NUS table, Italy's trunk charges soared by 51% and a total restructuring of Italian telephone and telex tariffs led to a 17.6% and a 15.2% rise in local and international telex tariffs, respectively.

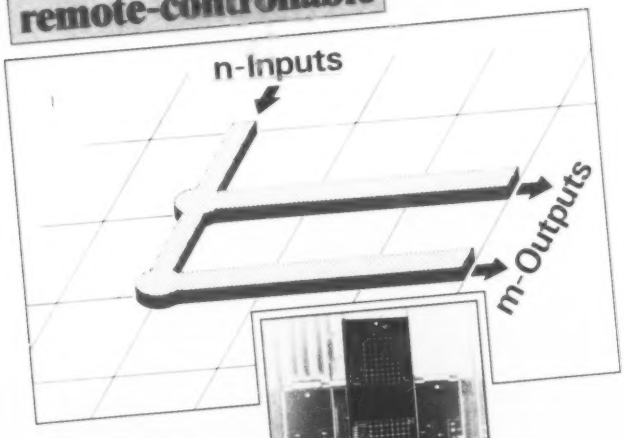
German telex costs rose substantially in 1983 and NUS anticipated a 30% rise in local charges in July 1984; these charges were last raised as long ago as 1973. German calls overseas remained the most expensive in the countries surveyed by NUS.

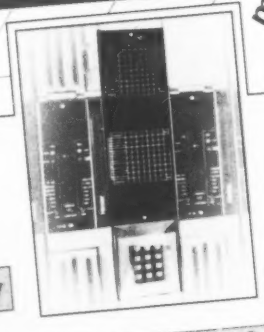
In the U.S., prices remained static in 1983. American Telephone & Telegraph Co. (AT&T) has filed to reduce trunk rates by 6% to 7% from April of this year, reflecting the competition offered by numerous alternative common carrier networks following the breakup of the Bell monopoly. AT&T has announced that the Federal Communications Commission's recent decision to postpone the imposition of access charges for at least 1 year "could prevent" the reductions in trunk rates (TELEPHONY, Jan. 30, p. 24).

Local call charges can be expected to rise, said the report, since the regional Bell operating companies can no longer be relied upon to subsidize local traffic from trunk call profits.

Canadian prices were either static or increased by the national retail price index figure. □

Microprocessor-controlled, remote-controllable





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Routing and distribution of broadband channels at the main centres of a microwave communications network must be accomplished simply, quickly, safely and reliably. The Hasler Intermediate Frequency Crossbar ZFKS 70/140 switches broadband channels, i.e. telephony or video + sound (bandwidth up to 15 MHz, carrier frequency 70 MHz or 140 MHz), automatically. Thanks to a microprocessor-controlled logic, a programmable changeover sequence at different points of the matrix is possible.

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The IF crossbar ZFKS 70/140 is backed by Hasler's extensive microwave experience. Please request further information by phone or with the coupon.

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period; 2.3%, 1974-1978; and 1.7%, 1979-1981. This decline in telecommunications funding is spectacular, especially since major supporters of the World Bank include the world's major telecommunications supplier nations: France, Germany, Japan, the United Kingdom and the United States.

The economic truth in this trend is, however, inescapable: Projects that can't withstand the trip to the bank don't get off the ground. Telecommunications either is not an essential infrastructure for development as widely claimed or telecommunications policy makers and officials are not making a convincing case for its contribution to the gross national and local product.

Costa Rica, which has a relatively stable economy, is a convincing example: During the 1973-1983 period, investment in rural telecommunications increased from 1% to 9% of the total budget, rural access increased from 28% to 36% of the total and business usage increased from 12.6% to 31.8% of the total number of calls.

TELEPHONY's 1984 world telecommunications spending forecast contains, therefore, more than a touch of contradiction: As developing countries struggle to extend telecommunications to their borders, the developed telecommunications supplier nations are locked in a different kind of struggle: Some of them want to contain telecommunications manufacture and control of service within their own borders while others are committed to an open scheme.

Virtually all telecommunications experts agree that few national markets alone are large enough to sustain a complete telecommunications manufacturing industry.

Therefore, the competition is intense and the weapons are not the clearly superior and more economical products of one supplier. In this area, current state of the art technology is a great equalizer!

The struggle centers on which national manufacturers will gain sufficient world market share to survive without subsidy and whether or not overt and covert telecommunications protectionism exacts too high a political and economic price to prevail as any nation's telecommunications policy.

In 1984 and beyond, this factor likely will emerge as the most powerful determinant of world telecommunications spending. □